GOSU BABA AND CAKES

Gosu baba is back from his long journey and is very hungry. He was served N plates numbered from 1 to N. i<sub>th</sub> plate contains A<sub>i</sub> amount of cake. Every minute he can choose a plate i, 1<=i<=N and eat x amount of cake from plate i and floor(x/2) amount of cake from i+1<sub>th</sub> and i-1<sub>th</sub> plate each. This whole operation takes x amount of Gosu baba’s effort. Assume there is an empty plate to the left of 1<sup>st</sup> plate and to the right of N<sub>th</sub> plate.

Eating x amount of cake from a plate i reduces the amount of cake left to max(0, A<sub>i</sub> - x).

Gosu baba can vary the value of x each minute. Help Gosu baba minimize his total effort to empty all the plates. He can take as much time as required. A plate is considered empty if the amount of cake left on it is 0.

Input:

First line contains N, the number of plates.

Second line contains N space separated integers representing A<sub>1</sub>, A<sub>2</sub>… A<sub>N</sub>.

Output:

Print minimum amount of effort required to empty all plates.